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THE MONTANA POWER COMPANY
1979 LONG RANGE PLAN

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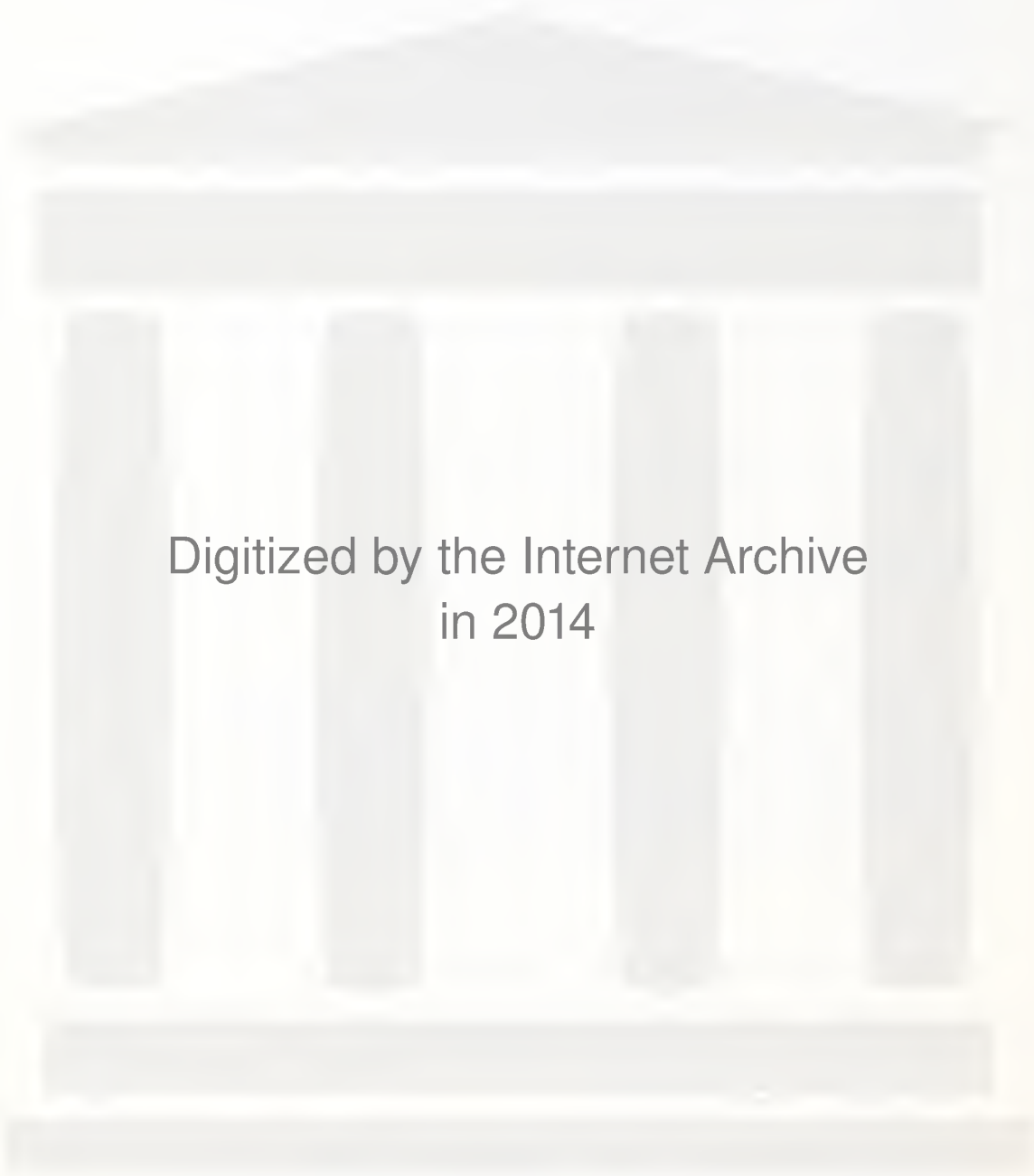
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THE MONTANA POWER COMPANY

ANNUAL LONG RANGE PLAN

Filed as of April 1, 1979
Pursuant to the Montana Major Facilities Siting Act

I.1 INTRODUCTION

Pursuant to Section 75-20-501 of The Montana Major Facilities Siting Act and Section 36-2.8(6)-S860-S870 ARM, The Montana Power Company hereby submits as of April 1, 1979, its annual Long Range Plan to the Montana Department of Natural Resources and Conservation. Certain voluminous exhibits which are part of this Long Range Plan are not included in each copy of the plan, but are on file with the Montana Department of Natural Resources and Conservation for inspection.

It should be noted that the information in this Long Range Plan represents the best efforts of The Montana Power Company to set forth its plans and projections based on present knowledge, data and circumstances. Because present circumstances will unpredictably change, the plans and projections set forth herein may also necessarily change.

II. THE GENERAL LOCATION, SIZE AND TYPE OF THE UTILITY FACILITY TO BE OWNED AND OPERATED BY THE MONTANA POWER COMPANY, WHOSE CONSTRUCTION IS PROJECTED AS OF APRIL 1, 1979, TO COMMENCE DURING THE ENSUING TEN YEARS, AS WELL AS THOSE FACILITIES TO BE REMOVED FROM SERVICE DURING THE PLANNING PERIOD[1].

II.1 ENERGY, GENERATING AND CONVERSION PLANTS AND ASSOCIATED FACILITIES

Energy, generating and conversion plants to be owned by The Montana Power Company whose construction is projected to commence during the ensuing ten (10) years, including an estimate of applicable filing and construction dates are shown on the following page on the chart entitled "Generation Base Plan" marked Exhibit "A" and attached hereto.

This "Base Plan" has been chosen to provide an orderly and timely plan for providing our future power requirements. The "Base Plan" provides the flexibility needed to incorporate possible changes and/or modifications which may result due to changes in economics, technology and legislation. The logical assumptions used in choosing this particular "Base Plan" are described below.

II.1.1 Base Plan Assumptions

The primary assumptions used for the "Base Plan" are that all current generation plants will remain available to us throughout the period, that existing contracts for purchases or sales will run their term without withdrawal or renewal, and that all additional resources required to meet

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1. Montana Major Facilities Siting Act 75-20-501(2)(a)

the forecasted load will be a combination of base load thermal plants in nominal 350 MW increments and peaking plants in 50 to 75 megawatt increments.

The logic behind these assumptions is as follows:

1. Our existing generation plants can all be kept in good and efficient operating condition with the application of proper maintenance through the period shown. The Bird Plant will be nearly 40 years old by 1990 -- slightly beyond a typical life for such a plant, but its use for most of those years as a reserve plant should add substantially to its life. All the hydro plants are assumed to be relicensed to us as their current licenses expire. The current competition for a new license at Kerr makes this assumption a little insecure, but until the matter is settled we cannot assume otherwise.

2. With the exception of one contract, all of our existing purchase and sales contracts with "out of state" utilities expire before 1988. Because of the anticipated shortages of energy in the Northwest region through the 1980's (and possibly beyond) and expected peak difficulties during the 1990's, we have

assumed that we will be unable to renew these contracts upon their expiration.

3. Our current knowledge of the energy technologies and economics through at least the 1980's indicates at this time that new energy requirements must be met basically with base-load thermal plants -- either coal-fired steam or nuclear. Economies of scale would indicate that 350 MW or larger are most economic in this type of plant. Reserve requirements and other considerations indicate that new energy resources in blocks of 300-350 MW seem appropriate for our system. Strict peaking plants in the period shown are likely to be either combustion turbines, additional units at hydro sites, or pump-storage hydro. The first two types lend themselves nicely to the size range which seems to be required by us in the period except for the 1987 block of 150 MW necessitated by the expiration of peak purchase and energy/peak exchange contracts with BPA.

II.1.2 Base Plan Related to Load and Resources

The "Base Plan" is shown more specifically as it relates to the estimated loads on the tables entitled "The

Montana Power Company Loads and Resources, Energy-Avg. Mw" and "Peak Mw" marked as Exhibits "B1" and Exhibit "B2" and attached hereto.

These load-resource tabulations list and summarize the total estimated load requirements and the committed resources which are available to meet these loads. Committed resources are defined to be those resources that exist, are under construction or have been contracted for, such as power purchases and exchanges. The difference between the committed resources and the load requirements give the surpluses and/or deficiencies that are expected to exist in the future. Using these forecasted deficits, additional plants are scheduled into the future, as shown on "Generation Base Plan", Exhibit "A", attached hereto.

II.1.3 Size, Type and Location of Facilities

Currently, as identified in our "Generation Base Plan", Exhibit "A", attached hereto, our plans center on the peaking plants needed in 1987 and 1988, and base-load energy plant needed in 1989. Economics today, the anticipated technology available commercially in the late 1980's, and environmental considerations indicate that the energy plant will most likely be a coal-fired, steam-electric plant somewhere in Montana. However, this position depends on whether Montana's siting and environmental laws and policies will allow any development in the State. We are currently

underway with a site screening study for this plant and will begin gathering background environmental data on several sites. We are also actively participating in a regional siting study over the entire Northwest area. The peaking plants are currently envisioned to be combustion turbines at possibly several locations on our system.

II.1.4 Modification and Alternatives to the Generation Base Plan

Some modifications or variations to our "Base Plan" may be available. These possibilities are discussed below in general terms.

1. Conservation -- We have considered in our load forecasts the potential for conservation which can reasonably be expected from voluntary efforts of our customers, barring a catastrophic general economic recession like that of the 1930's. Thus, this economic "resource" is already included in our base plan for resource additions.

2. Solar Energy -- Solar energy for central station electric generation probably will not be available until after the year 2000. Solar space and water heating in prototypes are available now to individuals who can afford the investment in so equipping their homes or businesses. Our load forecasts

include a reasonable allowance for reduction in load from such consumer installed solar heating. The opportunity for electrical load reduction on our system from solar heat is obviously limited because of the existing high incidence of natural gas heating.

We are actively involved with several solar heating projects around the State in monitoring their performance to help develop their economic viability.

3. Wind Energy -- It is expected that wind energy for central station electric service will not be developed for economic commercial application before the late 1980's. This assessment is based on the time-table for USBR's Medicine Bow project in Wyoming. In the meantime, some limited application might become viable as early as the mid-to-late 1980's. Again we feel that our load forecasts, at least through 1990, account for this potential.

We are actively promoting development of wind energy in Montana as the most promising "new" source in the near-to-mid term. We have committed $15,000 in a joint effort with

MERDI, contingent on State participation, in examining the potential for large scale (2.5 MW) wind generation at Livingston and small scale generation (40 kw) at Whitehall.

4. Standard Plant Design -- We are actively engaged in an effort with eight to ten other utilities in developing a standard design for 500 MW coal-fired steam-electric plants. Although 500 MW seems a little large for us at this time, the enormous potential economies from the "standard" design may well make it "fit" for us. Certainly a partnership with other Montana utilities (e.g., Central Montana G&T Cooperative) in a 500 MW standard plant would do no violence to our base plan and would allow us to capture for our customers the economies of standardization.

5. Hydroelectric Potential -- We currently have a three-pronged review underway designed to re-evaluate, in the light of new energy economics, the viability of hydroelectric generation in Montana at (1) "small" undeveloped hydro sites, generally where a reservoir already exists, (2) other larger sites, both within and outside the State,

such as Buffalo Rapids, High Mountain Sheep, Libby re-regulation, Fort Benton and Carter, and (3) at existing hydroelectric plants where redevelopment with larger or more generators might now be economic. This would mean the development of additional capacity on our system, but very little energy. Currently the most promising possibilities are those shown on the chart entitled "Possible Base Plan Modifications & Additions" marked Exhibit "C" and attached hereto. All of the projects listed are dependent upon receipt of a license from the Federal Energy Regulatory Commission and, in addition, the upgrade of Kerr and construction of Buffalo Rapids are dependent upon agreement with the Confederated Kootenai and Salish Tribes.

The preliminary results indicate that with the exception of Buffalo Rapids, these projects could be constructed by 1988. If this were the case, it would reduce the requirement of 150 MW of combustion turbines in 1987 to 125 MW, alleviate entirely the 75 MW of combustion turbines in 1988, and would delay the necessity of the 1989 330 MW thermal plant to 1990.

II.2 GASIFICATION PLANT AND ASSOCIATED FACILITIES

The Montana Power Company is continuing investigation of economics and feasibility of coal gasification. At this time, we have no plan for engineering, locating, siting, financing, or constructing such a plant. A partner or partners, with substantial financial standing, would be required to raise the necessary capital for such a plant. We are presently investigating the possibility of a joint gasification project with Montana-Dakota Utilities Company. Whether a coal gasification plant or plants would be proposed within the next ten years will depend, among other things, on such factors as the continued availability of gas from Canada, new discoveries of gas available to Montana Power in Montana and neighboring states, an Alaskan pipeline which would make gas available to Montana, and development of gasification technology and availability of capital.

II.3 ELECTRIC TRANSMISSION LINES

Electric transmission line construction projects projected to commence during the next ten years may be classified for purposes of discussion into two groups. The first group consists of those transmission lines for which application has or will most likely be made or a certificate has been received. A second group consists of transmission lines which are now under study by The Montana Power Company for maintaining adequate service to customers for which

application may be made during the next ten years. Whether and when these facilities will be built depends upon several factors, including the results of studies now under way by The Montana Power Company, and the future load growth. Additional transmission may be needed depending on new generation that comes on line.

The transmission lines in this first group with their general location and appropriate length and voltage, and their approximate date for filing of application, pre-construction and construction, are shown on the chart entitled "Transmission", marked as Exhibit "D" and attached hereto. Preconstruction activities may include surveying, environmental assessments, right-of-way acquisitions, and centerline location.

The transmission line construction projects in the second group along with their approximate general location, approximate length and voltage, and approximate date for filing of application and construction are shown on the chart entitled "Potential Transmission", marked as Exhibit "E" and attached hereto.

Transmission lines which may be relocated, reconstructed or upgraded which constitute "facilities" or "associated facilities" under the Act, are shown on the chart entitled "Relocation, Reconstruction Or Upgrading Of Transmission Facilities And Associated Facilities", marked as

Exhibit "F" and attached hereto. Transmission lines which are not "facilities" or "associated facilities" under the Act are not included because (1) it is impossible to determine which, if any, small transmission lines not covered by the Siting Act may be relocated, reconstructed or upgraded; and (2) it is our position that the requirement in the regulations requiring information on transmission facilities of a design capacity of 50 kilovolts is beyond the scope and legal authority of the department because those transmission lines are not subject to the jurisdiction of the department under the Act.

III. A DESCRIPTION OF EFFORTS BY THE MONTANA POWER COMPANY TO COORDINATE ITS PLANS WITH OTHER UTILITIES AS TO PROVIDE A COORDINATED REGIONAL PLAN FOR MEETING THE UTILITIES' NEEDS OF THE REGIONS[2]

III.1 GENERAL

Two basic facts are evident from examining The Montana Power Company's coordinated regional planning. First, there is a great amount of cooperation among private and public utilities in the Pacific Northwest. Secondly, there are many benefits to The Montana Power Company and other utilities in the Pacific Northwest and to their customers as a result of this regional cooperation.

The Montana Power Company regional efforts to improve its system reliability and availability of power supply are directed primarily to cooperation with other

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2. Montana Major Facilities Siting Act 75-20-501(2)(b)

utilities in the Columbia River Basin of the Pacific Northwest because the River Basin provides a logical planning unit from an historical, geographical and electrical system standpoint.

The Montana Power Company has many agreements, as described in detail below, with other utilities in the Columbia River Basin. Montana Power Company continues these regional efforts to improve reliability and availability of power supply with the publicly-owned utilities (such as rural cooperatives, municipals, and public utility districts) and with privately owned utilities (such as Puget Sound Power and Light Company, The Washington Water Power Company, Portland General Electric Company, Pacific Power and Light Company, etc.) and with other government agencies (such as Bonneville Power Administration, Corps of Engineers and Bureau of Reclamation). Montana Power also works closely with utilities in Montana, including the rural cooperatives.

III.2 COOPERATION AMONG UTILITIES

Cooperation among utilities in the Pacific Northwest has historically evolved, and now is structured by various organizations and agreements. For example, these organizations and agreements include:

(1) Western Systems Coordinating Council which was organized August 4, 1967, to promote reliability of bulk power electric systems in the West. Members now include

twenty (20) investor-owned and 26 publicly or cooperative-owned systems as well as thirteen (13) affiliated member electrical systems. The area covers all or parts of fourteen (14) western states and British Columbia. The purpose of the Council is to provide a formal means for exchange of data and information, and to make regional studies and recommendations that will have a favorable bearing on the reliability and adequacy of electric service in the West.

(2) The Pacific Northwest Utilities Conference Committee consists of 108 non-federal public agencies and five private companies. Its purposes include the coordination of load/resource planning in the Northwest region. The Montana Power Company is now an active and formal member of the Committee.

(3) The Joint Power Planning Council also works with regional loads and resources. The Montana Power Company is actively represented in the Council.

(4) The Northwest Power Pool, of which The Montana Power Company is one of the organizers, coordinates the bulk power system operation in the Northwest area. It is a longstanding and successful voluntary power pool and one of the oldest in the nation. Members of the Northwest Power Pool coordinate and optimize their respective bulk system operations to enhance reliability and efficiency.

(5) The Intercompany Pool (ICP) is a formal power pool organization of seven investor-owned utilities within the Northwest Power Pool area. Its express purposes include joint planning for additional required resources and transmission, pooling of reserve requirements, and optimizing use and distribution of secondary energy among the members.

(6) The Pacific Northwest Coordination Agreement was culminated in 1964 after years of negotiation among private and public utilities on the Columbia River System. Its principal purposes are to coordinate and optimize hydro generation operation and to allow equitable distribution of benefits from hydro storage developments on the Columbia River Basin. It is also active in the development of large shared thermal-electric generating plants under the Hydro-thermal Program.

(7) The Pacific Northwest Power Company, of which The Montana Power Company is a participant, was formed to pursue development of hydro-generation, particularly on the Snake River.

(8) Other agreements among individual utilities such as the AMPS Agreement (Associated Mountain Power Systems), consisting of Pacific Power and Light Company, Utah Power and Light Company, The Washington Water Power Company, The Montana Power Company and Idaho Power Company, are designed for the exchange of power and sharing of transmission capacity.

For a limited period this agreement also provided for sharing the costs and outputs of particular steam-generating plants in Wyoming.

(9) The Montana Power Company has been working with Montana-Dakota Utilities to coordinate and optimize gas supply within their systems and Montana.

(10) The Montana Power Company is a party to the Missouri River Coordination Agreement with the Bureau of Reclamation which is designed to optimize water resources in the Missouri River Drainage.

(11) There are also agreements and working relationships with the federal agencies such as the Bonneville Power Administration and the Bureau of Reclamation, and with various cooperatives in the State of Montana such as the Central Montana G&T and other system review with cooperatives in Montana. Presently the cooperatives are negotiating to participate in Colstrip 3 and 4.

III.2.1 Benefits of Regional Cooperation

The benefits of such regional agreements and organizations as discussed above are:

(1) Maximizing the use of resources;

(2) Minimizing the cost of energy to utility customers;

(3) Providing reliability and better service; and

(4) Minimizing environmental impact.

These benefits and objectives are studied and pursued in consideration of climates, water sheds, time zones, types of loads, etc., of each utility in the region. The exchange of power among utilities in the joint participation and construction and operation of facilities inures to all of these objectives.

An example of this type of regional planning by the Pacific Northwest utilities is found in the annual West Group Forecast of the Pacific Northwest Utilities Conference Committee, which lists the combined resources available to meet those loads. Included in those resources are many jointly-planned plants to supply future resource requirements.

This regional cooperation allows a utility such as The Montana Power Company, which may have deficiency over a period of years, to import power from another state and utility in order to meet its deficiencies. Such an exchange of power and participation keeps the utility from having to build several small facilities every time the utility has a slight increase in load demand. The utility may be an importer for a period of time, and then it may be an exporter, and then in a few years, it will become an importer again.

This exchange of power among utilities in the Northwest may also occur at certain times of the year and times of the day because of the diversity of peak loads among utilities in this region.

Secondly, regional cooperation and interconnected systems provide greater reliability to the customers of all regions. For example, if one utility's generation or transmission is out of service, another utility's facilities may help accommodate the utility with facilities out of service.

Thirdly, for the same amount of energy and service, the cost of construction and operation of fewer large facilities is less than the cost of construction and operation of many smaller facilities. This helps get energy to customers at the lowest possible rate.

Fourth, fewer large facilities often have less environmental impact than many smaller facilities. For example, one larger transmission line may be built in lieu of several smaller transmission lines.

In summary, these objectives and resulting benefits of regional cooperation are in the interest of each utility and each of their customers. It is submitted that the regional cooperation is envisioned in siting legislation such as the Montana Major Facilities Siting Act.

III.3 EXCHANGE AGREEMENTS

Previously a list of exchange, pooling and interconnection contracts dated November 2, 1977 was submitted to the Department.

An updated version of this November 2, 1977, list marked Exhibit G is attached hereto.

IV. A DESCRIPTION OF THE MONTANA POWER COMPANY'S EFFORTS TO INVOLVE ENVIRONMENTAL PROTECTION AND LAND USE PLANNING AGENCIES IN THE PLANNING PROCESS, AS WELL AS OTHER EFFORTS OF THE MONTANA POWER COMPANY TO IDENTIFY AND TO MINIMIZE ENVIRONMENTAL PROBLEMS AT THE EARLIEST POSSIBLE STAGE IN THE PLANNING PROCESS[3]

IV.1 GENERAL ENVIRONMENTAL POLICY

It is The Montana Power Company's policy to participate with federal and state agencies, as well as public interest groups and citizens, to encourage coordination of energy and environmental programs.

IV.2 PARTICIPATION IN LAND USE AND ENVIRONMENTAL PLANNING

The Montana Power Company continues to research new environmental technologies as an integral part of its energy planning process.

As part of the preliminary work on Colstrip Units 3 and 4, the engineering staff has worked closely with the United States Environmental Protection Agency (EPA) on

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3. Montana Major Facilities Siting Act 75-20-501(2)(c)

meteorological and air quality modeling pursuant to meeting Class I air quality standards of the Northern Cheyenne Indian Reservation, south of Colstrip. Venturi wet scrubbers, which were substantially new technology when installed by The Montana Power Company at Colstrip Units 1 and 2, will be used at Units 3 and 4. Also, a process that employs dolomitic lime to increase sulfur dioxide removal from emissions has been developed for use at Colstrip Units 3 and 4.

The Montana Power Company provides the Montana Department of Health and Environmental Sciences with monthly ambient air quality reports from monitoring stations in the Colstrip vicinity. The Company provides the Department with periodic groundwater quality reports from sample wells at Colstrip. Under the Montana Pollution Discharge Elimination System of the Clean Water Act, the Company also provides the Department and the EPA with quarterly water quality reports on discharges from the Company's sewage treatment plants and monthly reports on water discharge from the J. E. Corette Generating Plant at Billings.

The Montana Power Company is conducting, supporting, or participating in a number of environmental studies. At Colstrip, studies underway include monitoring the water in the settling ponds, surveying wildlife, conducting a long-term infrared study of the 200-square-mile area surrounding Colstrip, surveying vegetation through a study contracted to

the Montana Agricultural Experiment Station, and monitoring the benthic community and water quality of Armell's Creek and both natural and man-made ponds in reclamation areas. Outside the Colstrip area, a study is proceeding on the fish population of the West Rosebud Creek in Stillwater County to establish minimum streamflow requirements for fish.

In transmission and pipeline projects, it is the Company's policy to involve early in the planning process appropriate land-use planners at the federal, state and local levels as well as individual landowners. Environmental assessments are provided by the Company for projects that affect waterways, federal lands or state lands. The Company also submits formal comments on land-use plans proposed by federal agencies. Currently, negotiations are nearing completion for lease without charge of a recreation area on land owned by The Montana Power Company to the Parks Division of the State Fish and Game. Such donations of recreation land to the public are not uncommon in the history of The Montana Power Company.

The Montana Power Company's environmental staff is comprised of a rather wide background of expertise. The disciplines represented are biology, geology, range management, biochemistry, chemical engineering, environmental engineering and electronic technology. Expertise is kept up-to-date by on-going participation in various professional associations.

Active membership is maintained in the following: Ecological Society of America, American Fisheries Society, North American Benthological Society, Power Biologists Association, Air Pollution Control Association, and the American Chemical Society. The staff also participates in various state and federal environmental activities.

V. PROJECTIONS OF THE DEMAND FOR SERVICES RENDERED BY THE MONTANA POWER COMPANY AND EXPLANATION OF THE BASIS FOR SUCH PROJECTIONS, AND A DESCRIPTION OF THE MANNER AND EXTENT TO WHICH THE PROPOSED FACILITIES WILL MEET THE PROJECTED DEMAND[4]

V.1 GENERAL

The Montana Power Company continuously monitors the demand for electricity and studies and pursues alternate resources to meet the demand. In addition to the following national and regional trends in energy use, and development in resource technology, the Company also makes load and resource forecasts of its own total system.

V.1.2 System Load Forecasts

Total system load forecasts are reviewed and updated frequently by The Montana Power Company. The latest forecast was made on November 11, 1977 and revised September 22, 1978. The projected annual loads for the next ten (10) operating years (July-June) are shown for annual energy and peak on the charts, marked Exhibits "B1" and "B2" and attached hereto.

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4. Montana Utility Siting Act Section 75-20-501(2)(d)

The revision to the September 22, 1978 version was made to incorporate known changes for future consumption in some of our large industrial customers.

V.1.2.1 Assumptions Used in Forecasts

The original forecast was made by dividing our historical loads into two categories; a "base" component and a "block" component. The block component consists of several large industrial users whose loads have exhibited no discernable trend over the years. Future loads for this group are projected on a customer-by-customer basis after consultation with each customer. The base component is projected by extrapolating a least squares fit of the historical base loads (time series analysis) and considering a number of other factors. The total forecast is a summation of these two projections. The basic assumptions implied by the forecast presumes a continuation of moderate population growth in Montana, a continuing growth in GNP and state commercial and industrial output, and continuing growth in real per capita income, etc. The change in direction expected in the trend of real cost of electricity to the consumer, with its attendant lowering of demand, is assumed to be offset by extra population growth in the 20-30 year age group, and increased environmental cleanup loads in commerce and industry. Additionally, the change of energy use mix in Montana and the United States will increase the demands for electricity in future years.

Efforts are continuing in the development of an econometric load forecasting model for The Montana Power Company system. Significant progress has been made in developing data bases and in the analysis and specifications of equations. It is hoped that a first attempt to use econometrics to help produce a forecast will be ready for internal review by early Fall of 1979. If progress continues at its current level, an econometric approach to load forecasting should be available by next year's Long Range Plan. This method will allow for a more detailed discussion and analysis of causal factors affecting load growth. It will also lend itself to projections of electrical consumption by broad customer classifications, but not by individual rate codes. Typical classifications which may be used are shown on the chart entitled "Consumption by Type of Service - Actual 1978" marked Exhibit "H" and attached hereto. In addition, the chart entitled "Projected Consumption by Type of Service - 1979-1983 -, marked Exhibit "I" and attached hereto shows the forecasted sales for the type of service shown. This forecasting was done using time-series analysis methods as described above; future forecasts will be done with a combination of econometric methods and time-series analysis. It should be noted that the forecast is of metered sales only, whereas the annual loads on Exhibits B1 and B2 are on an input basis which includes the transmission and

distribution losses associated with delivering the sales to the customer's meter.

In addition to the development of an econometric model, load forecasting procedure work is continuing in the area of load research on about 400 randomly selected residential and commercial customers equipped with special meters. Analysis of this research data is expected to supply information that can be used to modify the econometric results by end-use adjustments, and it is primarily designed to provide much of the necessary information needed to assess the effects of various rate and pricing structures.

Presently, our load forecast includes our estimate of cooperative loads for which we have historically supplied the resources, and may not agree with individual cooperative forecasts of their purchases from us. Negotiations are presently underway in which the cooperatives would jointly own a ten (10) percent share of Colstrip Units 3 and 4. If these negotiations and Colstrip 3 and 4 are consummated, it is expected that MPC's obligation to serve the cooperatives would be limited and their future load growth would be served from their share of Colstrip 3 and 4. Pursuant to an agreement between The Montana Power Company and the cooperatives agreed upon in 1976, we have given notice to the cooperatives that we will no longer be able to serve their increased loads beyond 1980 levels.

Our current load forecasts do not specifically include some potential new industrial loads of which we are aware and which are sufficiently large to merit special treatment in the forecasting effort. The plans are not yet "firmed up" to the point where we feel we have a commitment to serve, so they are not yet included in the forecast. Two of these loads are: (1) the Northern Tier Pipeline load which might amount to 85-90 MW, and (2) possible long range plans of the Anaconda Company for deep-level, block-cave mining in Butte, which would require substantial additions to hoisting load.

V.1.3 Unit Area by Substation Load Analysis

In addition to making load and resource forecasts for its total system, The Montana Power Company also monitors loads on each of its approximately 600 substations throughout its service area. The monthly peak and average kilowatts used at each of these substations during 1978 are shown on the table marked Exhibit "J", entitled 1978 Peak and Average Kilowatt Readings for Distribution Substations, which is voluminous and one copy will be submitted to the Department along with this Long Range Plan.

Future energy demand patterns of a substation unit area for annual increments for the next ten years are shown on the table marked Exhibit "K", entitled "Estimated Peak Substation Load in Kilowatts 1979-1988" which is voluminous

and one copy will be submitted to the Department along with this Long Range Plan. The area each of the substations serve and the substation are identified by an installation number, shown on a map which map will also be separately submitted to the Department.

The "NA" designation on the map indicates that the load for that particular substation was not acceptable. Such a designation is a result of several possible reasons, including that the substation load was obviously incorrect or no reading was reported.

The Estimated Peak Substation Load shown on the map is based on a recording period from April through April in each year.

The column headings are the year in which the recording period started. This is done so that winter peaks may be recorded for the three consecutive winter months of December, January and February; i.e., the 1978 peaks including December of 1978 and January and February of 1979. The peaks indicated are not coincidental. They represent the maximum peak reading anticipated for that season and may occur at any time during that season.

The basic projections were made by fitting a compound growth curve by means of a least squares method fit to the existing data. The projections were then analyzed for their validity, taking into consideration the number of

years of data the projection was based on, recent trends in the area, and known load additions. If a projection made by this method is obviously not valid, a reasonable prediction is made based on historical and known load growth data for the area.

V.1.4 Manner of Meeting System Loads

Projections based on continuous monitoring of substations and other factors are studied by The Montana Power Company to determine what expansion programs are necessary on its system. Expansion programs may mean increasing transformer size for capability, adding additional transformers or building new substations, or building new transmission or generation facilities. New substations or a shifting of loads from substation to substation or transformer to transformer may give an erroneous impression of actual area growth. A careful analysis of changes which have taken place is necessary to determine actual load growth in an area. To establish load growth rates, many factors must be considered and analyzed. Weather conditions, extended outages, switching of loads, construction procedures, industrial and commercial development, urban development, development of residential subdivisions, irrigation and pumping, electric space heating and air conditioning requirements are some of these factors which must be considered as they may affect load growth rates. It

should be noted that the sum of the individual substation loads is not equal to the total system load forecast for two major reasons: (1) the substation loads do not include transmission losses sustained on the system between the resource and the substation, and (2) there is substantial diversity among the times of the individual substation peak loads. In load flow and stability computer studies of the entire system, the load distribution across the system is derived using proportionately "shrunk" substation loads so that their sum does equal the total system load forecast. In detailed studies of particular areas of the system, the substation load forecasts are used unadorned since that particular area can be expected to experience its own undiversified load.

When it appears that additional transmission lines or generation are needed as a result of this monthly and yearly monitoring of substation load changes and as a result of all of the many other factors such as weather conditions, extended outages, switching of loads, industrial and commercial development, urban development, irrigation and pumping, etc., then more detailed studies of transmission line and generation requirements are made.

In addition to the continuous monitoring of the entire system by monthly and yearly changes, The Montana Power Company also takes into consideration the anticipated

trends in type of load growth. For example, The Montana Power Company considers inquiries or requests for major additional loads from industrial, agricultural or other sources. The Montana Power Company also considers and anticipates that certain uses of electricity, such as the use of electricity for sprinkler irrigation or home heating, will create substantial additions to its load demand.

The Montana Power Company, in an attempt to fulfill its responsibility to provide electric service to its customers, attempts to balance electrical resources against electrical load. This is done on both a peak and energy basis. Such forecasts must also include consideration of reserves which are required to make sure that the Company can serve its customers at all times. The forecasts also take into account required down time of plants and facilities for maintenance and contracts of exchange with other utilities. When it is determined that a new source of generation or transmission is needed, The Montana Power Company considers the alternatives for meeting these requirements and makes further detailed studies regarding the needed facility. As pointed out in Section III hereof, such studies are often conducted in cooperation with other utilities in the region.

V.1.5 Whether Projected Facilities Will Meet Projected Demands

The general size and type of utility facilities to be owned and operated by The Montana Power Company, which

are discussed in Section II above of this Long Range Plan, are a result of all of these studies and considerations regarding projection and demand on both a total system basis and on a substation unit basis. If the facilities that are proposed in Section II above are allowed to be built as scheduled by The Montana Power Company, such facilities should adequately meet the projected demand. However, because some of the facilities including transmission lines such as Clyde Park-Big Sky-Dillon, and generating plants, such as Colstrip 3 and 4, have been delayed, primarily by regulatory authorities and litigation, customer demand may not adequately be met.

Whether replacement power adequate to fill energy deficits will be available is questionable because other utilities in the Pacific Northwest also forecast deficits in the 1980's, and because such replacement power is dependent upon the availability of high priced oil.

GENERATION BASE PLAN

	1979				1980		1981		1982	1983	1984	1985	1986	1987	1988
	1st	2nd	3rd	4th	1st	2nd	1st	2nd							
Colstrip #3	S	S	C	C	C	C	C	C	C	C					
Colstrip #4	S	S	C	C	C	C	C	C	C	C	C				
330 MW Coal-fired Plant								F			P	C	C	C	C
150 MW of Combustion Turbines									F			P	C	C	
75 MW of Combustion Turbines										F			P	C	C
330 MW Coal-fired Plant													F		

F - File Application with Department of Natural Resources and Conservation

P - Preconstruction

C - Construction

S - Suspended Construction

Scheduled Commercial Operation Dates:

Colstrip #3	July 1, 1983
Colstrip #4	May 1, 1984
1st 330 MW Plant	July 1, 1989
150 MW of Comb. Turb.	July 1, 1987
75 MW of Comb. Turb.	July 1, 1988
2nd 330 MW Plant	July 1, 1993

EXHIBIT "A"

EXHIBIT "B1"

THE MONTANA POWER COMPANY
LOADS & RESOURCES

March 1979
RCS

ENERGY - AVG. MW.

	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
LOADS										
Firm Energy Load	746	806	841	879	919	960	1,004	1,050	1,098	1,150
Interruptible Load	3	3	3	3	3	3	3	3	3	3
Total Load	749	809	844	882	922	963	1,007	1,053	1,101	1,153
COMMITTED RESOURCES										
Hydro-Median Water	385	387	388	388	388	388	388	388	388	388
Firm Transfers	83	131	139	137	76	78	80	82	98	103
Corette	139	139	139	139	139	139	139	139	139	139
Colstrip No. 1	135	135	135	135	135	135	135	135	135	135
Colstrip No. 2	135	135	135	135	135	135	135	135	135	135
Colstrip No. 3	-	-	-	-	126	172	172	172	172	172
Colstrip No. 4	-	-	-	-	21	134	172	172	172	172
Total Committed Resources	977	927	936	934	1,020	1,181	1,221	1,223	1,239	1,244
Annual Maintenance	32	38	38	44	32	67	70	71	67	68
Net Committed Resources	845	889	898	890	988	1,114	1,151	1,152	1,172	1,176
UNCOMMITTED RESOURCES										
Total Uncommitted Resources	-	-	-	-	-	-	-	-	-	-
TOTAL RESOURCES	845	889	898	890	988	1,114	1,151	1,152	1,172	1,176
SURPLUS (DEFICIENCY) OVER TOTAL LOAD and MAINTENANCE WITH MEDIAN WATER	96	80	54	8	66	151	144	99	71	23
MEDIAN WATER ADDER	48	50	51	51	51	51	51	51	51	51
SURPLUS (DEFICIENCY) OVER TOTAL LOAD and MAINTENANCE WITH CRITICAL WATER	48	30	3	(43)	15	100	93	48	20	(28)
BIRD - IF OIL IS AVAILABLE	60	60	60	60	60	60	60	60	60	60

1. Loads are per 11/11/77 Load Estimate revised 9/22/78.

2. Colstrip Units 3 and 4 are assumed commercial July 1983 and May 1984 respectively with energy availability at 60% for first twelve months of operation and 75% thereafter (including scheduled maintenance). Commercial operation is based on start of construction in March 1979. Each month delay in start of construction will result in a month slip in commercial operation date.

3. Uncommitted energy resources assume a net availability of 60% for first twelve months and 75% thereafter (based on 330 MW net capability).

EXHIBIT "B2"

THE MONTANA POWER COMPANY
LOADS & RESOURCES

March 1979
RCS

PEAK - MW

	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89
LOADS										
Firm Peak Load	1,042	1,121	1,168	1,217	1,268	1,321	1,377	1,436	1,498	1,563
Interruptible Load	10	10	10	10	10	10	10	10	10	10
Forced Outage Reserves	183	183	183	183	215	247	247	247	270	281
Total Load Requirement	1,235	1,314	1,361	1,410	1,493	1,578	1,634	1,693	1,778	1,854
COMMITTED RESOURCES										
Hydro	518	518	518	518	518	518	518	518	518	518
Firm Transfers	193	244	290	296	248	249	251	253	104	106
Bird	70	70	70	70	70	70	70	70	70	70
Corette	180	180	180	180	180	180	180	180	180	180
Colstrip No. 1	165	165	165	165	165	165	165	165	165	165
Colstrip No. 2	165	165	165	165	165	165	165	165	165	165
Colstrip No. 3	-	-	-	-	210	210	210	210	210	210
Colstrip No. 4	-	-	-	-	-	210	210	210	210	210
Total Committed Resources	1,291	1,342	1,388	1,394	1,556	1,767	1,769	1,771	1,622	1,624
UNCOMMITTED RESOURCES										
Peak Resource									150	150
Peak Resource										75
Total Uncommitted Resources	-	-	-	-	-	-	-	-	150	225
TOTAL RESOURCES	1,291	1,342	1,388	1,394	1,556	1,767	1,769	1,771	1,772	1,849
SURPLUS (DEFICIENCY) OVER FIRM LOAD & RESERVES	66	38	37	(6)	73	199	145	88	4	5

1. Loads are per 11/11/77 Load Estimate revised 9/22/78.

2. Reserves are those carried for ICP and increased by 15% of the net capability of Colstrip Units 3 and 4 and all other uncommitted plants.

3. Uncommitted peak resources are for peaking only - assumes negligible annual energy output.

4. Peak interruptible load is carried by reserves.

POSSIBLE BASE PLAN MODIFICATIONS AND ADDITIONS*

	1979				1980		1981		1982	1983	1984	1985	1986	1987	1988
	1st	2nd	3rd	4th	1st	2nd	1st	2nd							
Kerr Hydro Upgrade										P	P	C	C	C	
Thompson Falls Hydro								F			P	P	C	C	
Hauser Hydro								F			P	P	C	C	
Hebgen Hydro								F			P	P	C	C	
Buffalo Rapids Hydro						F					P	P	C	C	C

F - File Application with the Federal Energy Regulatory Commission

P - Preconstruction

C - Construction

*See text for explanation and discussion

EXHIBIT "C"

TRANSMISSION

Project & General Location	Voltage (kV)	Approx Length (Miles)	1979 1st Qtr.	1979 2nd Qtr.	1979 3rd Qtr.	1979 4th Qtr.	1980 1st Half	1980 2nd Half	1981 1st Half	1981 2nd Half	1982	1983	1984	1985	1986	1987	1988	1989
Bozeman-Dillon																		
(a) Dillon Ennis	161	50	P	P	P	P	C	C										
(b) Ennis-Big Sky	161	25		P	P	P	C	C										
(c) Bozeman-Ennis	161	52		P	P	P	C	C										
Clyde Park-Emigrant	161	41		P	P	P					C							
Broadview-Roundup-Glengarry*																		
(a) Broadview-Roundup	100	36	P	P	P	PC	C											
(b) Roundup-Grass Range	100	44		P	P	PC	C	C										
(c) Grass Range-Glengarry	100	35		P	P	PC	C	C										
Great Falls-Conrad	115	60				F	S	S	S	S	C							
Missoula-Hamilton Heights	161	60		P	P	P	C	C										
Laurel-Bridger "B"	100	35					F	S	S	S	SP	C						
Colstrip-Broadview "A"**	500	113	P	P	P	P	P	P	P	P	C							
Colstrip-Broadview "B"	500	113	P	P	P	P	P	C	C	C	C							
Broadview-Townsend "A"	500	320	P	P	P	P	P	P	P	C	C	C						
Broadview-Townsend "B"	500	320	P	P	P	P	P	P	C	C	C	C						
Alkali Creek-Laurel	230	15				F	S	S	S	SP	C							

* Joint Project with Fergus Electric Co-op.
** Conversion from 230 kV

F - File Application
S - Study Time & Hearing
P - Preconstruction
C - Construction

EXHIBIT D

F - File Application
S - Study Time & Hearing
P - Preconstruction
C - Construction

POTENTIAL TRANSMISSION

Project & General Location	Voltage (kV)	Approx. Length (Miles)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Missoula #1 Substation to Waldorf - Rebuild & reconductor line	100	13		FS	C								
Rimrock Substation to Bellrock Substation to 8th St. Substation Convert line to 100 kV	100	12		FS	S	C							
230 System Tie to Benchland	100	10 or less			FS	S	C						
Roundup-Ivanhoe-Sumatra	100	50					FS	S	S	C			
Anaconda-Philipsburg-Drummond	100	53				F	S	S	S	C			
Garrison-Helena	230	50			FS	S	S	S	C				
Helena-Great Falls	230	80							FS	S	S	S	C
Ovanda-Missoula	230	60					F	S	S	S	C		
Plains-Superior or St. Regis	100	25			FS	S	S	C					
Tie from 230 kV in Dillon Area to Dillon-Salmon Sub.	161	10 or less				F	S	S	C				
Assinniboine-Richardson Coulee	161	160		FS	S	S	S	C					

Exhibit E

POTENTIAL TRANSMISSION PROJECTS FOR CONVERSION TO HIGHER VOLTAGE LEVELS OR TO BE RECONDUCTORED

Project & General Location	Voltage (kV)	Approx. Length (miles)	1979 1st Qtr.	1979 2nd Qtr.	1979 3rd Qtr.	1979 4th Qtr.	1980 1st Half	1980 2nd Half	1981 1st Half	1981 2nd Half	1982	1983	1984	1985	1986	1987	1988	1989
Colstrip-Broadview "A"	500	113	P	P	P	P	P	P	P	P	C							
Missoula #1 Substation* to Waldorf	100	13					FS			C								
Rimrock Substation to Bellrock Substation to 8th St. Substation	100	12					FS			S	C							

EXHIBIT F

LIST OF CONTRACTS

	EFFECTIVE DATE	CONTRACT NO.
Pacific Northwest Coordination Agreement	09/15/64	14-03-48221
BPA-Firm Purchase, Amendment No. 4 (Amends earlier agreement in its entirety)	08/25/75	14-03-51702
BPA & WPPSS-Hanford Exchange	04/12/63	14-03-35621
Exhibit B (Points of Delivery)	09/01/73	
BPA & WPPSS-WPPSS No. 1 Exchange	02/06/73	14-03-39212
Amendment No. 1 (Relocation of Project)	05/31/74	
Letter Agreement (Option on Extended Operation & Cost of Relocation)	05/08/74	
BPA-Hanford Extension (1977-1983)	08/26/77	14-03-79120
Amendment No. 1 (Change of Fiscal Year)	05/18/78	
BPA-Exportable Energy (to Southwest)	01/13/69	14-03-73155
BPA-Hot Springs-Anaconda Wheeling	10/22/63	14-03-40534
Supplement No. 1 (Ovando-Gt. Falls)	03/17/67	
BPA-Glacier Co-op Wheeling	08/25/75	14-03-59142
BPA-Missoula Co-op Wheeling	01/15/68	14-03-74725
Amendment No. 1 (Huson)	04/30/75	
Amendment No. 2 (Clinton)	08/11/78	
MPC-Missoula Electric Co-op. - Letter Agreement For Use of Distribution Facilities (Wheeling to Petty Creek)	08/01/78	
BPA-Ravalli Co-op Wheeling	01/15/68	14-03-74726
Amendment No. 1 (Grantsdale)	03/18/71	
Amendment No. 2 (Victor)	10/18/74	
BPA-Northern Lights Co-op Wheeling	01/15/68	14-02-74724
MPC-Northern Lights Co-op - Letter Agreement For Use of Distribution Facilities (Wheeling to Cherry Creek)	08/15/78	

	EFFECTIVE DATE	CONTRACT NO.
BPA-Vigilante Co-op Wheeling	08/21/67	14-03-53715
Amendment No. 1 (East Bench)	04/27/70	
Amendment No. 2 (Barretts)	09/24/77	
MPC-Sun River Electric Co-op - Wheeling Letter Agreement (MPC Wheeling to Augusta)	10/04/78	
WAPA-Rainbow-Yellowtail - Wheeling Letter Agreement	12/22/77	
USBR-Anaconda-Billings or Hot Springs-Yellowtail Wheeling - Letter Agreement	03/22/68	
USBR-Interconnection, Exchange and Wheeling	05/14/64	14-06-600-8264
Supplement No. 4 (Maintenance)	05/14/70	
Letter Agreement (Reducing Supv. Control Payment)	08/04/72	
Supplement No. 5 (Yellowtail Interconnection)	07/05/71	
Revision No. 7 - Exhibit A	11/15/73	
Letter Agreement (Net Billing)	12/10/64	
USBR-Missouri River Coordination	03/30/72	14-06-600-476A
USBR-Cut Bank Line & Area Transmission	07/04/70	14-06-600-58A
USBR-Canyon Ferry-Rainbow Wheeling	01/25/51	179r-1838
Supplement No. 1 (Temp. Initial Service)	05/10/54	
Supplement No. 2 (Extending Term)	07/01/70	
Glacier Co-op-Cut Bank Interconnection Agreement	04/05/71	
AMPS Interconnection Agreement	04/21/65	
Service Schedule No. 1 (PUMI Agreement)	07/01/69	
Exhibits A-1; A-2 (Revised)	08/19/69	
Exhibits A-2 (Revised)	02/01/70	
Exhibits A-2 (Revised)	08/01/71	
Memo of Understanding (O&M Accounting Procedures)	10/01/71	
Idaho-Montana Service Schedule (Interchange, Purchase & Sale)	04/21/65	
Amendment No. 1 (Extending Term)	03/01/74	
Idaho, Utah, Montana Interconnection Agreement	03/04/41	

	EFFECTIVE DATE	CONTRACT NO.
Service Schedule A-3 with Utah (Sale)	02/14/74	
Service Schedule B-2 with Utah (Exchange)	02/14/74	
Service Schedule F-2 with Idaho (Salmon use of Facilities)	10/01/54	
ICP Agreement (Intercompany Pool)	09/01/73	
PP&L-Montana Exchange Agreement	12/21/65	
PP&L-Montana Mutual Wheeling Letter Agreement	04/24/67	
USIIS Sales Agreement (Flathead Irrigation Project)	07/01/70	
WSCC Agreement (Western Systems Coordinating Council)	08/04/67	
WWP-Contract (Sale & Exchange)	10/01/64	
Amendment No. 1 (Hydro @ BPA Rates)	08/31/66	
Amendment No. 2 (Sale of Firm Peaking Power)	07/01/70	
WWP-Letter Agreement (Hanford Energy Exchange for Peak)	09/02/75	
Central Montana Generation and Transmission Cooperative (Sale to Co-ops)	01/30/74	
Exhibit A (Revised)	10/27/76	
Exhibit B (Revised)	10/27/76	
Exhibit C (Rate Schedule)	07/01/74	
Big Horn Co-op-Power Agreement	03/12/71	
Letter of Understanding (Yellowtail Details)	03/12/71	
Supplement No. 1 (Contract Demand & Rates)	02/15/74	
Tongue River Co-op-Power Agreement (Colstrip-Ashland Area)	08/17/59	
PGE-Exchange Letter Agreement (Capacity & Energy Exchange)	09/08/78	
Revised Appendix 1 to Exchange Letter Agreement	10/01/78	

CONSUMPTION BY TYPE OF SERVICE

ACTUAL - 1978

Type of Service	JAN MWH	FEB MWH	MARCH MWH	APRIL MWH	MAY MWH	JUNE MWH	JULY MWH	AUGUST MWH	SEPT MWH	OCT MWH	NOV MWH	DEC MWH	ANNUAL MWH
Residential													
Residential	154,604	157,481	141,334	116,334	104,972	96,850	92,942	91,675	93,744	96,080	108,577	159,009	1,413,604
Other Residential[1]	2,815	2,804	2,476	2,010	1,764	1,679	1,387	1,318	1,404	1,543	1,807	2,908	23,916
TOTAL	157,419	160,285	143,810	118,344	106,736	98,529	94,329	92,993	95,148	97,623	110,384	161,917	1,437,520
General Service Rate													
Commercial	105,118	107,917	104,314	96,700	89,617	90,918	96,153	96,012	99,579	94,479	98,291	115,922	1,195,110
Industrial	59,807	57,824	52,658	53,597	51,447	52,774	53,428	55,897	59,981	56,784	58,354	59,527	672,082
Other General Service[2]	2,941	2,887	2,883	2,509	2,582	2,256	2,328	2,514	2,514	2,085	2,559	3,519	31,479
TOTAL	167,866	168,628	159,855	152,806	143,646	145,948	151,909	154,423	162,074	153,348	159,204	178,968	1,898,671
Optional Electric													
Church	126	125	99	65	57	47	23	14	18	39	69	134	816
Irrigation	-514	-10	-250	-119	80	5,284	17,486	17,437	17,294	6,628	3,633	1,045	68,005
Special Contracts													
Commercial	417	417	417	417	417	756	499	498	498	496	494	494	5,822
Industrial	132,862	134,462	122,380	134,783	107,599	103,138	118,224	132,902	140,378	132,737	140,899	138,159	1,538,520
TOTAL	133,279	134,879	122,797	135,200	108,016	103,894	118,723	133,400	140,876	133,233	141,393	138,653	1,544,342
Government & Municipal	6,978	7,699	7,622	6,738	6,307	5,259	5,807	5,390	5,674	5,416	5,734	6,587	75,211
Lighting Rates[3]	6,347	6,356	6,371	6,396	6,435	6,326	6,495	6,419	6,413	6,417	6,448	6,432	76,858
USIIS	8,333	7,526	8,333	8,038	8,304	8,043	8,229	8,318	7,971	8,331	8,064	8,308	97,795
REA	36,544	37,477	33,583	27,179	23,331	21,305	19,808	22,449	24,376	21,449	21,994	36,811	326,307
TOTAL[4]	516,379	522,965	482,221	454,647	402,914	394,636	422,809	440,844	459,844	432,485	456,925	538,856	5,525,525

[1] Includes Residential Rate - 2 Apartments, Residential Rate - Employees, and Residential Rate - Interdepartmental.

[2] Includes General Service - Residential, General Service - Interdepartmental, Residential Water Heat, Commercial Water Heat, Industrial Water Heat, Athletic Fields and D. C. Elevators.

[3] Includes Street Lighting, Post Top Lighting and Yard Lighting; the customers are all from the Street Lighting category.

[4] Excludes system losses and sales to out-of-state utilities.

EXHIBIT "H"

EXHIBIT "I"

PROJECTED CONSUMPTION BY TYPE OF SERVICE

1979 - 1983

ype of Service	1979 MWHs	1980 MWHs	1981 MWHs	1982 MWHs	1983 MWHs
esidential					
Residential	1,401,202	1,476,573	1,555,997	1,639,695	1,727,894
Other Residential[1]	24,122	25,960	27,943	30,086	32,401
TOTAL	1,425,324	1,502,533	1,583,940	1,669,781	1,760,295
eneral Service Rate					
Commercial	1,258,269	1,345,870	1,439,569	1,539,792	1,646,992
Industrial	738,329	775,076	813,652	854,147	896,658
Other General Service[2]	35,011	36,330	37,741	39,242	40,858
TOTAL	2,031,609	2,157,276	2,290,962	2,433,181	2,584,508
ptional Electric Church	634	660	687	712	738
rrigation	95,732	112,389	131,945	154,904	181,857
pecial Contracts					
Commercial	5,604	5,914	6,241	6,586	6,951
Industrial	1,542,672	1,578,740	1,693,571	1,826,600	1,835,911
TOTAL	1,584,344	1,699,485	1,832,841	1,842,497	1,852,266
overnment & Municipal	82,415	82,415	82,415	82,415	82,415
ighting Rates[3]	76,172	76,566	76,944	77,327	77,709
SIIS	98,113	98,113	98,100	98,100	98,100
EA	305,747	323,821	342,966	363,244	363,244
TOTAL[4]	5,700,090	6,053,258	6,440,800	6,722,161	7,001,132

[1] Includes Residential Rate - 2 Apartments, Residential Rate - Employees, and Residential Rate - Interdepartmental.

[2] Includes General Service - Residential, General Service - Interdepartmental, Residential Water Heat, Commercial Water Heat, Industrial Water Heat, Athletic Fields, and D. C. Elevators.

[3] Includes Street Lighting, Post Top Lighting and Yard Lighting; the customers are all from the Street Lighting category.

[4] Excludes system losses and sales to out-of-state utilities.

EXHIBIT "J" is

voluminous and

has been submitted

to the Department

EXHIBIT "K" is

voluminous and has

been submitted to

the Department